

# PHD POSITION AVAILABLE



ALMA MATER STUDIORUM  
UNIVERSITÀ DI BOLOGNA

Doctoral School in  
**Nanoscience for Medicine and Environment**  
Università di Bologna - Italy



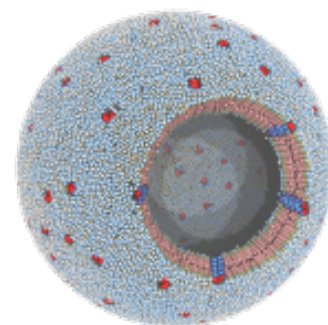
European  
Research  
Council

## Study of light-driven molecular pumps in self-assembled bilayer membranes

One PhD position in Nanoscience is available to perform research in the frame of an ERC Advanced Grant entitled "LEAPS - Light effected autonomous molecular pumps: towards active transporters and actuating materials". Principal Investigator: Prof. Alberto Credi

### Background on molecular machines and motors

The construction and operation of machines at the extreme stage of miniaturization - that is, at the molecular level - is a fascinating challenge of nanoscience and an important objective of nanotechnology. Light is a convenient energy source to operate molecular machines. In our lab we have shown that molecular pumps, capable of using light energy to operate away from chemical equilibrium, can be rationally designed. A research effort is necessary to move a step forward towards the exploitation of these molecular machines to perform useful tasks.



For an overview of the field, see: [dx.doi.org/10.1002/open.201700181](https://dx.doi.org/10.1002/open.201700181). For our recent papers on molecular machines and pumps, see: [dx.doi.org/10.1038/nnano.2014.260](https://dx.doi.org/10.1038/nnano.2014.260), [dx.doi.org/10.1073/pnas.1712783115](https://dx.doi.org/10.1073/pnas.1712783115)

The PhD student will become part of a young and dynamic team consisting of other graduate students, post-docs, and staff members working in an internationally renowned laboratory. The ideal candidate must have a second-level University degree (e.g. a Master or equivalent) in Chemistry with an outstanding record, and a strong motivation in undertaking a challenging research project in a stimulating and competitive environment.

Training will be provided in the preparation and study of self-assembled nanostructures with a range of analytical and physical chemistry techniques (NMR, IR, UV-vis, DLS) as well as in photochemistry and spectroscopy. Undergraduate experience on bilayer membranes will be considered as a plus.

The research will be performed in the Center for Light Activated Nanostructures (CLAN), a joint lab between Università di Bologna and Consiglio Nazionale delle Ricerche (CNR), located in the CNR Bologna campus (ISOF institute, [isof.cnr.it](http://isof.cnr.it)) with access to the facilities of the Department of Chemistry of the University.

Details on the ERC-funded research project can be found at: [site.unibo.it/leaps](http://site.unibo.it/leaps)

For information about the PI's profile and scientific production: [www.credi-group.it](http://www.credi-group.it)

Web site of the Center for Light Activated Nanostructures: [centri.unibo.it/clan/en](http://centri.unibo.it/clan/en)

**Keywords:** molecular machines | functional materials | nanoscience | photochemistry | self-assembly | supramolecular chemistry

If interested, please send your CV to [alberto.credi@unibo.it](mailto:alberto.credi@unibo.it) or ask for more information

Call opens

March 2018

Application deadline

mid May 2018

Starting date of contract

1 November 2018

Duration

3 Years

